

09/836,976

00RE098

REMARKS

Claims 1-27 are currently pending in the subject application and are presently under consideration. No claims have been amended herein. A clean version of all pending claims is found at pages 2-7 of this Reply.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-27 Under 35 U.S.C. § 103(a)

Claims 1-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Marshall *et al.* (U.S. 5,685,398) in view of McCarthy (U.S. 4,181,201). Withdrawal of this rejection is respectfully requested for at least the following reasons. Neither Marshall *et al.* nor McCarthy, alone or in combination, teach or suggest each and every limitation set forth in the subject claims.

To reject claims in an application under § 103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) *must teach or suggest all the claim limitations*. See MPEP § 706.02(j). The *teaching or suggestion to make the claimed combination* and the reasonable expectation of success *must both be found in the prior art and not based on applicant's disclosure*. See *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

The present invention relates generally to brake motors and in particular to systems and methods of using a manual brake release mechanism. Independent claim 1 recites "...a manual brake release, comprising: a field cup adapted to support an electromagnetic coil; an *armature plate coupled to the field cup*; a stationary plate coupled to the armature plate; a friction disk disposed between the armature plate and the stationary plate; a compression spring disposed between the field cup and the armature plate, the compression spring being

09/836,976

00RE098

operable to hold the armature plate and the friction disk against the stationary plate; and a *lever and cam assembly coupled to the armature plate and the field cup*, the lever and cam assembly being operable to separate the armature plate from the friction disk.” Independent claims 11, 21, and 27 recite similar features to those of claim 1. The claimed invention *directly* couples a rotary cam to a lever (See Figure 5), which then *directly acts upon the armature plate and field cup to which it is coupled*. Turning the camshaft *directly* results in movement of the cam and the top portion of the lever toward the friction disk, which in turn forces the bottom portion of the lever to move in an opposite direction, away from the friction disk. The cam itself is mounted on the lever (*see, e.g.*, Figure 5), so that when the handle is turned, *the entire lever/cam assembly is tilted (see, e.g.*, Figures 6 and 7). Because the bottom portion of the lever is directly attached to the armature plate/field cup assembly, the armature plate and field cup are also pulled away from the friction disk, permitting free rotation of the friction disk and the axis to which it is attached. This element of the present invention is advantageous in that it requires fewer moving parts than the McCarthy system while providing a high mechanical advantage in a compact space. Neither Marshall *et al.* nor McCarthy, alone or in combination, teach or suggest such features of applicants’ claimed invention.

Marshall *et al.* describes an *externally mounted lever*, which, when moved in either a forward or rearward direction, *disengages* an armature from a friction disc. Marshall *et al.* does not teach the lever/cam assembly of the present invention. The Examiner relies on McCarthy to introduce the cam portion of a lever/cam assembly.

McCarthy fails to overcome the deficiencies of Marshall *et al.* with respect to the subject claims. McCarthy is directed toward providing mechanical advantage in a compact space. *See, e.g.* column 5, lines 9-15 and column 6, lines 21-31, discussing the advantages of smaller and fewer parts associated with achieving mechanical advantage. The McCarthy structure involves a cam engaging latch arm 88 coupled to a handle 92. To manually release the brake, the handle must be turned 90°, such that the latch arm 88 engages with a U-shaped cam portion 64 and pivots the cam portion 64 and a supporting lever 24 to release a brake shoe 46 from a frictional braking engagement with a brake disc 16. *The cam engaging latch arm 88 and handle 92 assembly is a separate structure*

09/836,976

00RE098

from the cam portion 64 and the supporting lever 24, as shown in Fig. 1 of McCarthy. Neither the cam engaging latch arm 88, the cam portion 64, nor the supporting lever 24 is coupled to an armature plate or a field cup. Combining the cam-engaging latch arm 88 and handle 92 assembly to the lever of Marshall et al. would merely result in a cam-engaging latch arm that pushes a lever, and not in a cam/lever assembly wherein the cam pushes itself and the lever away from a fixed structure when turned. In fact, neither reference, alone or in combination, discloses such a fixed structure (e.g. the field cup 240) positioned to provide a surface against which the cam-engaging latch arm 88 could push to effectuate movement of itself and a lever, let alone a cam mounted directly on a lever.

Additionally, the claimed invention advantageously converts rotational motion into linear motion to release a brake using fewer parts than the McCarthy invention. Specifically, if the handle 92 and cam-engaging latch arm 88 are considered to be a cam, as asserted by the Examiner, then McCarthy requires *two* cams to effectuate the application of force to the lever (e.g., if the handle 92 and cam-engaging latch arm 88 combination is a cam, then the cam 60 is a second cam required for operation of the McCarthy system), which results in increased production costs and decreased efficiency. Conversely, and as stated above, the claimed invention sets forth a single cam that is mounted directly on a lever, which releases a brake. Additionally, every time motion is translated from a linear to a rotational axis, or *vice versa*, energy is lost, resulting in a less efficient machine. Thus, the present invention is more efficient than the McCarthy system because it employs fewer translations of motion.

In order to establish a prima facie case of obviousness, the teaching or suggestion to make the claim modification *must be found in the cited art*, not based on the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Furthermore, the mere fact that the reference can be modified does not render the modification obvious *unless the cited art also suggests the desirability of the modification*. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Combining the references in the manner suggested by the Examiner would not result in the invention as claimed. The combination of the handle 92, cam-engaging latch arm 88,

09/836,976

00RE098

and cam 60 of McCarthy and the externally mounted handle 312 of Marshall *et al.* would result in a structure that, when the handle is manipulated, would turn the cam engaging latch arm, which would in turn push the lever. This is very different from the single-cam-internal-lever assembly of the claimed invention, *which is a unit* (e.g., the lever passes through the center of the cam). Furthermore, because the cam and lever assembly is a unit, the cam of the present invention does not push on the lever to effectuate release of a brake, but rather actuation of the cam causes the cam portion of the cam/lever assembly to push the cam/lever assembly away from a separate structure, the field cup 240, which results in movement of the cam/lever assembly unit.

In view of at least the above, it is readily apparent that the combination of Marshall *et al.* and McCarthy does not make obvious the present invention as set forth in independent claims 1, 11, 21, and 27 (and claims 2-10, 12-20, and 22-26, which depend respectively there from). Therefore, this rejection should be withdrawn.

09/836,976

00RE098

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephonic interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephonic number listed below.

Respectfully submitted,

AMIN & TUROCY, LLP



John M. Ling
Reg. No. 51,216

AMIN & TUROCY, LLP
24TH Floor, National City Center
1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731